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(11)

EP 0 800 997 A1

(12)

EUROPEAN PATENT APPLICATION

published in accordance with Art. 158(3) EPC

(43) Date of publication:
15.10.1997 Bulletin 1997/42

(51) Int. Cl.⁶: B65D 3/02, B65D 5/24,
B65D 85/36

(21) Application number: 95935590.0

(86) International application number:
PCT/JP95/02223

(22) Date of filing: 31.10.1995

(87) International publication number:
WO 97/16352 (09.05.1997 Gazette 1997/20)

(84) Designated Contracting States:
GB

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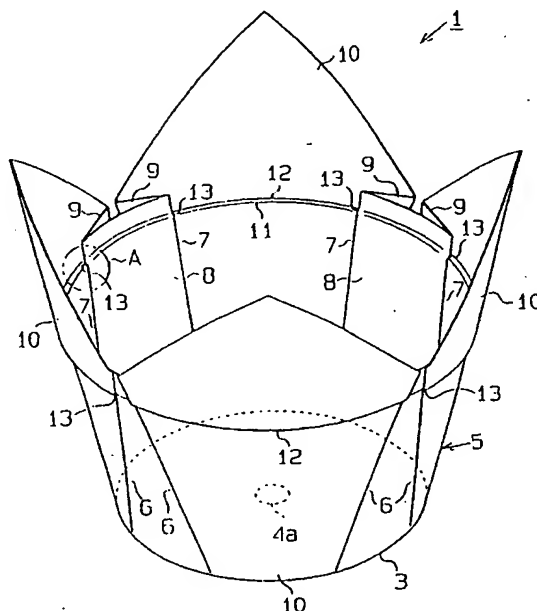
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(54) CONTAINER FOR CAKE

(57) Valley creases (3) are formed on a surface of a stock material (2) which comprises thin paper. The surface of the stock material (2) is divided by the valley creases (3) into a bottom surface portion (4), which corresponds to a bottom surface portion of a piece of cake, and a side wall (5) which adjoins the bottom surface portion (4). The side wall (5) is formed on its surface with valley creases (6) and mountain creases (7). The valley creases (3, 6) and mountain creases (7) make a container body (1) into a shape of a cup. The respective creases (6, 7) produce a plurality of divided creased pieces (8, 9, 10). The creased pieces (8, 9, 10) are formed with step portions (13) which intersect the valley creases (6) and the mountain creases (7) in a stepwise manner. When a restoring force of the stock material (2) acts on the valley creases (6) and the mountain creases (7), the respective creases (6, 7) tend to unfold but the step portions (13) resist to prevent unfolding.

Fig. 2



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Description

Technical Field

The present invention relates to a cake container, and more specifically, to a cake container for forming and maintaining cake batter that is heated to expand in a predetermined configuration.

Background Art

Conventionally, a cup-like container formed by bending sheet material such as paper is known as a cake container for holding poundcake and the like. For example, as shown in Fig. 22, a container body 20 comprises a bottom 21 corresponding to the bottom of a cake and a sidewall 22 protruding from the periphery of the bottom 21. The container body 20 consists of a sheet of material, which is shaped like a cup by press working. A fold 23 is defined on the surface of the material. The bottom 21 and the sidewall 22 are separated by the fold 23 as a boundary. Outer folds 24 and inner folds 25 are defined on the surface of the sidewall 22. The surface of the sidewall 22 is divided into a plurality of bent pieces 26a-26c by the folds 24, 25.

Typically, aluminum foil is used as material for such a container. In this case, once the material is bent at the outer folds 24 and the inner folds 25, bent folds are easy to form. Thus, the folds 24, 25 are difficult to unfold, and the entire configuration of the sidewall 22 in the container body 20 is favorably maintained.

Meanwhile, if the material is made of synthetic resin, paper or the like, a restoring force that restores the material to its original flat shape is applied to the outer folds 24 and the inner folds 25 when the material is bent by press working. This leads to a problem in that the sidewall 22 loses its shape, and the entire configuration of the sidewall 22 cannot be properly maintained.

Accordingly, it is an object of the present invention to provide a container in which the entire configuration of the sidewall in the container body is favorably maintained by making the folds defined on the sidewall not to unfold.

Disclosure of the Invention

In a cake container according to the present invention, a first fold is defined on the surface of material made of sheet body to be press-worked. The surface of the material is divided by the first fold as a boundary between a bottom corresponding to the bottom of cake and a sidewall. Second folds are defined on the surface of the sidewall. The sidewall is divided into a plurality of bent pieces by these second folds as boundaries. Furthermore, a step portion intersecting the second folds to form a difference in level is defined at each bent piece to maintain the configuration of the sidewall. When restoring force of the material that restores to the original sheet-shape is applied to the second folds bent and

formed, the second folds are about to unfold. However, the second folds are prevented from unfolding by the step portion as resistance.

Brief Description of the Drawings

Fig. 1 is a plan view showing material in an embodiment according to the present invention;

Fig. 2 is a perspective view showing a container body;

Fig. 3 is an enlarged perspective view showing a region A in Fig. 2;

Fig. 4 is a plan view showing another embodiment of the container body provided with two step portions;

Fig. 5 is an elevational view showing the container body in Fig. 4;

Fig. 6 is a perspective view showing the container body in Fig. 4;

Fig. 7 is a side view showing the container body in Fig. 4;

Fig. 8 is a plan view showing another embodiment of the container body provided with three step portions;

Fig. 9 is an elevational view showing the container body in Fig. 8;

Fig. 10 is a perspective view showing the container body in Fig. 8;

Fig. 11 is a perspective view showing another embodiment of the container body provided with step portions solely at the outer folds and the inner folds on the sidewall of the container body;

Fig. 12 is a plan view solely showing the bottom of the container body having a plurality of air holes disposed radially in another embodiment of the container body;

Fig. 13 is a plan view solely showing the bottom of the container body having four circular air holes in another embodiment of the container body;

Fig. 14 is a plan view solely showing the bottom of the container body having five circular air holes in another embodiment of the container body;

Fig. 15 is a plan view solely showing the bottom of the container body having four rectangular air holes in another embodiment of the container body;

Fig. 16 is a plan view solely showing the bottom of the container body having four square air holes in another embodiment of the container body;

Fig. 17 is a plan view solely showing the bottom of the container body having three square air holes in another embodiment of the container body;

Fig. 18 is a plan view solely showing the bottom of the container body having two air holes in another embodiment of the container body;

Fig. 19 is a cutaway perspective view showing part of the container body having the upper end of the third bent piece notched in a constricted manner;

Fig. 20 is a cutaway perspective view showing part of the container body having the upper end of the third bent piece notched in a right-angled manner;

Fig. 21 is a cutaway perspective view showing part of the container body having the upper end of the third bent piece notched in a curved manner; and

Fig. 22 is a perspective view showing a prior art cake container.

Best Mode for Carrying Out the Invention

Several embodiments of a cake container according to the present invention will be described hereinafter with reference to Figs. 1-3.

As shown in Figs. 1 and 2, material 2 forming a container body 1 in a circular cup-like shape is sheet-like thin paper. The material 2 has waterproofing and greaseproofing and is formed in a square shape. An octagonal inner fold 3 is formed by press working substantially in the center of the surface of the material 2. The surface of the material 2 is divided by the inner fold 3 into a bottom 4 corresponding to the bottom 14a of cake 14 illustrated in Fig. 5 and a sidewall 5 corresponding to the side 14b of the cake. A circular air hole 4a is formed at the center of the bottom 4. When cake batter is baked, hot air is introduced via the air hole 4a into the container body 1, and the cake batter is baked mellowly with the introduction of the hot air.

Inner folds 6 are formed on the surface of the material 2 corresponding to the side wall 5 by press working in such a way that the folds 6 extend diagonally from the corners of the bottom 4 joinably toward the periphery of the material 2. Likewise, outer folds 7 as second folds are formed on the surface of the material 2 corresponding to the side wall 5 by press working in such a way that the folds 7 extend from the corners of the bottom 4 orthogonally toward the periphery of the material 2. The sidewall 5 is divided by the inner folds 6 and the outer folds 7 into rectangular first bent pieces 8, triangular second bent pieces 9 and pentagonal third bent pieces 10.

In the first, second and third bent pieces 8, 9 and 10, a pair of step-like folds 11, 12 that extend parallel to the inner fold 3 and extend to intersect the inner folds 6 and the outer folds 7 are formed by press working. Each inner fold 3, 6, outer fold 7 and step-like fold 11, 12 is formed simultaneously by a single press work with one forming die. The material 2 in Fig. 1 shows the state in which it is spread out again in a sheet manner after the press work.

As shown in Fig. 3, a step portion 13 is defined between K1 where the inner step-like fold 11 and the inner fold 6 or outer fold 7 intersect and K2 where the outer fold 12 and the inner fold 6 or outer fold 7 intersect. More specifically, the step portion 13 is formed by the step-like folds 11, 12 and is located on the same plane at the upper part of the sidewall 5 with angles defined by the step portion 13 and each fold 6, 7 substantially right-angles. In the present embodiment, the width of the step portion 13 is approximately 1 mm. Although the outer fold 7 that is the boundary between the first bent piece 8 and second bent piece 9 is solely shown, the inner fold 6 is not shown as the fold 6 that is the boundary between the second bent piece 9 and third bent piece 10 is composed in like manner.

In the following, the operation and effects of the cake container as composed above will be described.

When the container body 1 is formed, the sidewall 5 is bent by a one-step press work at the inner fold 3. The first bent pieces 8 and the second bent pieces 9 are folded outward at the outer folds 7. The second bent pieces 9 and the third bent pieces 10 are folded inward at the inner folds 6. Then the first, second and third bent pieces 8, 9 and 10 are respectively further bent outward at the inner step-like fold 11 and bent inward at the outer step-like fold 12. Then a step portion 13 is formed by the step-like folds 11, 12 at each inner fold 6 and outer fold 7.

As shown in Fig. 3, the restoring force that restores the bent pieces 8, 9 to their original state, i.e., a flat shape (arrows P shown in Fig. 3) is applied to the outer fold 7 defining a boundary between the first bent piece 8 and the second bent piece 9 due to the nature of the material 2, unfolding the bent pieces 8, 9. Although the restoring force P is also applied to the step portion 13, the outer fold 7 does not unfold as the step portion 13 operates as resistance against the restoring force P. As a result, the first and second bent pieces 8 and 9 do not unfold outward relative to the container body 1. The same is also applied to the inner fold 6 which is not shown, and the second and third bent pieces 9 and 10 do not unfold outward relative to the container body 1. As a result, deformation in which the sidewall 5 unfolds at the inner fold 6 or outer fold 7 is prevented.

As described above, in the present embodiment, the step portion 13 is provided at each inner fold 6 and outer fold 7 on the sidewall 5 of the container body 1 so that the step portion 13 can be operated as resistance against the restoring force P that operates to unfold each fold 6, 7. This prevents the first, second and third

bent pieces 8, 9 and 10 on the sidewall 5 from unfolding and thus, the entire configuration of the sidewall 5 can be favorably maintained.

In addition, since the step portion 13 lies in the same plane of the sidewall 5, the resistance against the restoring force of the material 2 is applied uniformly along the periphery of the sidewall 5. Thus, the sidewall 5 is prevented from deforming more reliably.

Furthermore, the first, second and third bent pieces 8, 9 and 10 do not need adhering to one another with adhesive in order to maintain the configuration of the sidewall 5. Thus, the sidewall 5 can be easily unfolded, and cake is easy to eat.

In the present embodiment, the following effects can be achieved as the material 2 is made of thin paper.

In case a foreign metal substance is mixed in the cake batter to be contained in the container body 1, the foreign metal substance can be detected by a metal detector unlike the case in which the container body 1 is made of aluminum foil.

Additionally, when the cake batter contained in the container body 1 is baked, heat of an oven is difficult to diffuse as compared with a container made of aluminum foil. Thus, the time for baking cake batter is reduced.

Moreover, unlike an aluminum foil container the cake batter can be baked with a microwave range in addition to an oven. Thus, a variety of baking methods can be selected depending on the nature of the cake batter.

In addition, material cost can be more reduced in thin paper than in aluminum foil, thereby reducing the overall manufacturing cost of the container body 1. Moreover, when the unnecessary material 2 is disposed of, the incineration efficiency of the material 2 made of thin paper is higher as the material 2 can be incinerated at a lower temperature than aluminum foil.

Furthermore, writing or illustrations can be printed on the outer surface of the sidewall 5 as thin paper is used, thereby improving the attractiveness of the container body 1.

The present invention can be embodied as follows in addition to the above-mentioned embodiment.

In the above embodiment, one step portion 13 is defined by a pair of step-like folds 11, 12. The number of step portion 13 may be two as illustrated in Figs. 4-7 or may be three as shown in Figs. 8-10. These constructions enhance resistance against the restoring force of the material 2, thereby further preventing the sidewall 5 from deforming. In the above embodiment, the inner fold 3 is defined at the boundary between the bottom 4 and the sidewall 5. The inner fold 3 may be omitted by curving the boundary between the bottom 4 and the sidewall 5. Furthermore, a plurality of step portions 13 may be provided in succession along the height of the container body 1 instead of at a predetermined location, which is not shown.

In the above embodiment, a step portion 13 is defined at the inner folds 6 and the outer folds 7 by the step-like folds 11, 12 formed annularly relative to the

first, second and third bent pieces 8, 9 and 10. As illustrated in Fig. 11, step portions 13 may be defined solely at the inner folds 6 and the outer folds 7 instead of forming the step-like folds 11, 12 annularly. This construction also achieves the same effects as the above embodiment.

In the above embodiment, one circular air hole 4a is defined in the center of the bottom 4 of the container body 1. As shown in Fig. 12, a plurality of air holes 4a extending radially from the center of the bottom 4 outward may be defined. As illustrated in Fig. 13, four air holes 4a may be defined at equal distances at the same plane having the center of the bottom 4. Furthermore, as illustrated in Fig. 14, five air holes 4a may be defined at equal distances at the same plane having the center of the bottom 4. In addition, as shown in Fig. 15, the air holes 4a shown in Fig. 13 may be rectangular or may be square as shown in Fig. 16. Moreover, the number of air holes 4a shown in Fig. 16 may be three. As shown in Fig. 18, the number of air holes 4a may be two, where part of the air hole 4a is formed in a saw-like manner. In addition to the air holes 4a shown in Figs. 12-18, air holes 4a may be shaped arbitrarily, or the number of air holes 4a may be modified arbitrarily.

In the above embodiment, the upper end of the third bent piece 10 on the sidewall 5 is shaped in a right-angled manner. As illustrated in Fig. 19, the upper end of the third bent piece 10 may be notched in a tapered manner. As shown in Fig. 20, the upper end of the third bent piece 10 may be notched in a right-angled manner. Furthermore, as shown in Fig. 21, the upper end of the third bent piece 10 may be rounded.

In the above embodiment, the step portion 13 is positioned at the same plane of the sidewall 5. The step portion 13 may be arranged in a zigzag pattern as long as it intersects the inner folds 6 and outer folds 7.

In the above embodiment, the step portion 13 is bent toward the outside of the container body 1, and outside of the step portion 13 are arranged bent pieces 8-10. These positional relationships may be reversed. Such a construction also achieves the same effects as that of the above embodiment.

In the above embodiment, the container body 1 is shaped like a circular cup. The container body 1, for example, may be formed in a arbitrarily shaped cup such as a triangular cup, a square cup or the like.

In the above embodiment, thin paper having waterproofing and oilproofing is used as the material 2. In addition to the material 2 having such properties, kraft paper, kraft extensible paper having micro crepe (microscopic wrinkles), machine glazed paper having a gloss on one surface, India paper, paraffin paper, tarpaulin, duplex asphalt paper, Japanese paper or the like may be used. Besides paper, cellophane, moisture proof cellophane, plastic film, polyethylene film, polypropylene film, polyvinyl chloride film, polyvinylidene chloride film, polyester film, polystyrene film, nylon film, polyvinyl alcohol film, polycarbonate film may be used. Furthermore, film type synthetic paper and synthetic paper with

synthetic pulp as its raw material may also be used. In addition, aluminum foil may be used, or aluminum foil may be adhered to the above paper or film. The quality of the material of the material 2 may be modified in any form in addition to the quality of the material described above.

The container body 1 may be embodied so that the inner folds 6 are outer folds and that the outer folds 7 are inner folds.

Preferably, the size of the material 2 in the above embodiment is in the range from 10 cm x 10 cm to 20 cm x 20 cm. The size may be arbitrarily determined without being restricted specifically to this range.

The thickness of the material 2 in the above embodiment may be arbitrarily determined.

In the above embodiment, the material 2 shaped like a square is used. The material may be arbitrarily changed so that it is shaped in a circular, rectangular or elliptical manner without being limited to the square shape.

In the present embodiment, the width of the step portion 13 is approximately 1 mm. Although it varies depending on the thickness, quality of the material and size of the material 2, the width of the step portion 13 is preferably in the range from 0.2 mm to 5.0 mm. The width of the step portion may be arbitrarily determined without being restricted specifically to this range.

Claims

1. A cup-like cake container formed by a sheet material (2), characterized by that said material (2) includes a bottom portion (4) associated with a bottom surface (14a) of the cake (14) and a side wall (5) continuous to the bottom portion (4) and associated with a side surface (14b) of the cake (14), said side wall (5) has a plurality of folds (6, 7) for defining a plurality of bent pieces (8, 9, 10) in a surface of the side wall (5) to form a cup-like container body (1), and each of said bent pieces (8, 9, 10) has a step portion (13) transversing the folds (6, 7) to hold a shape of the side wall (5).
2. The cup-like container as set forth in Claim 1, characterized by that said step portions (13) are continuously arranged in a peripheral direction of the side wall (5).
3. The cup-like container as set forth in Claims 1 or 2, characterized by that said step portions (13) are arranged in a multiple-step manner.
4. The cup-like container as set forth in Claim 3, characterized by that each of said step portions (13) continuously extends to a depth.
5. The cup-like container as set forth in any one the preceding claims, characterized by that each of said step portion (13) is formed in an upper portion of the side wall (5).
6. The cup-like container as set forth in Claim 1, characterized by that said material (2) is made of a sheet of paper.
7. The cup-like container as set forth in Claim 6, characterized by that said material (2) is greaseproofing.
8. The cup-like container as set forth in Claim 1, characterized by that said bottom portion (4) has at least one air hole (4a) for introducing hot air.
9. The cup-like container as set forth in Claim 8, characterized by that said bottom portion (4) has a plurality of the air holes (4a).
10. The cup-like container as set forth in Claims 8 or 9, characterized by that said air hole (4a) has a circular shape.

Fig. 1

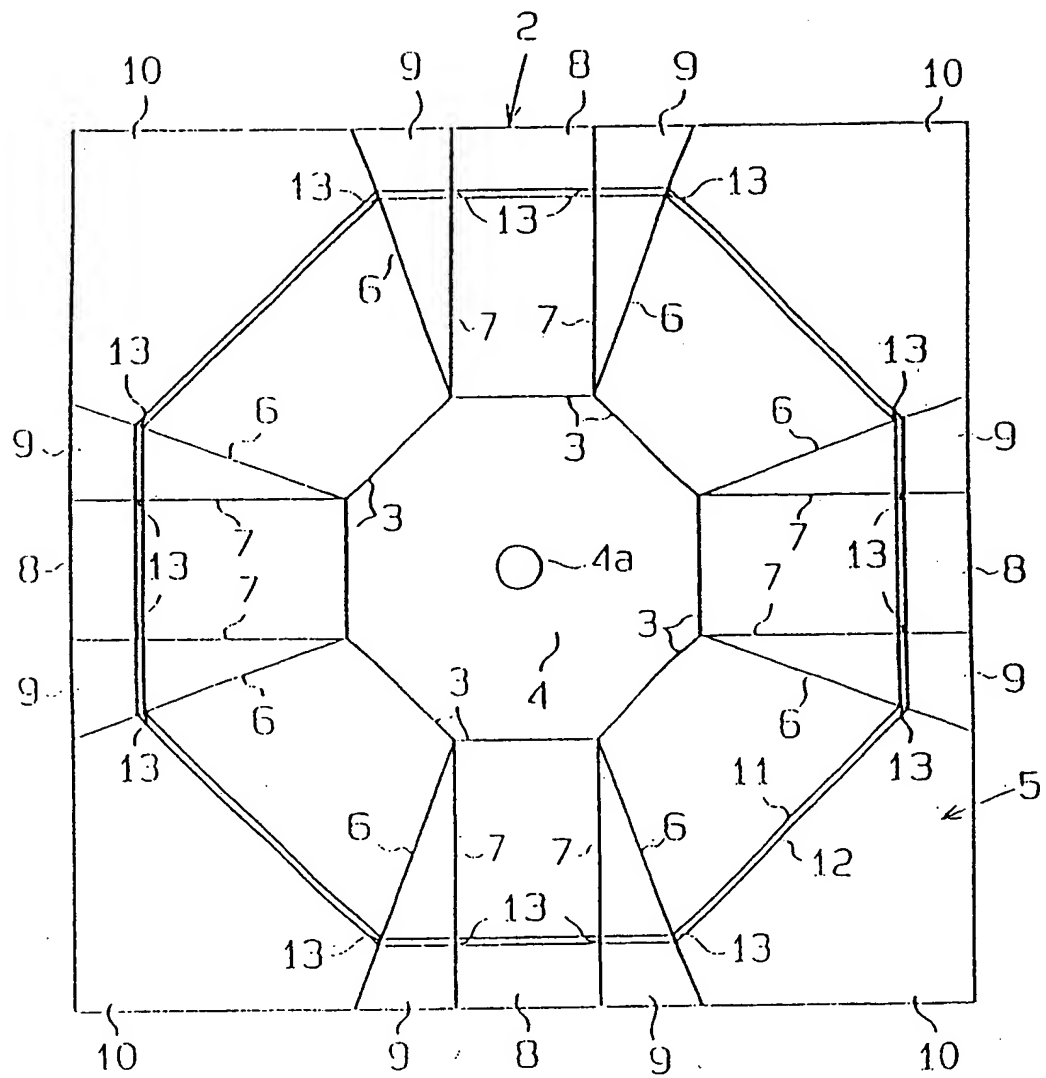


Fig. 2

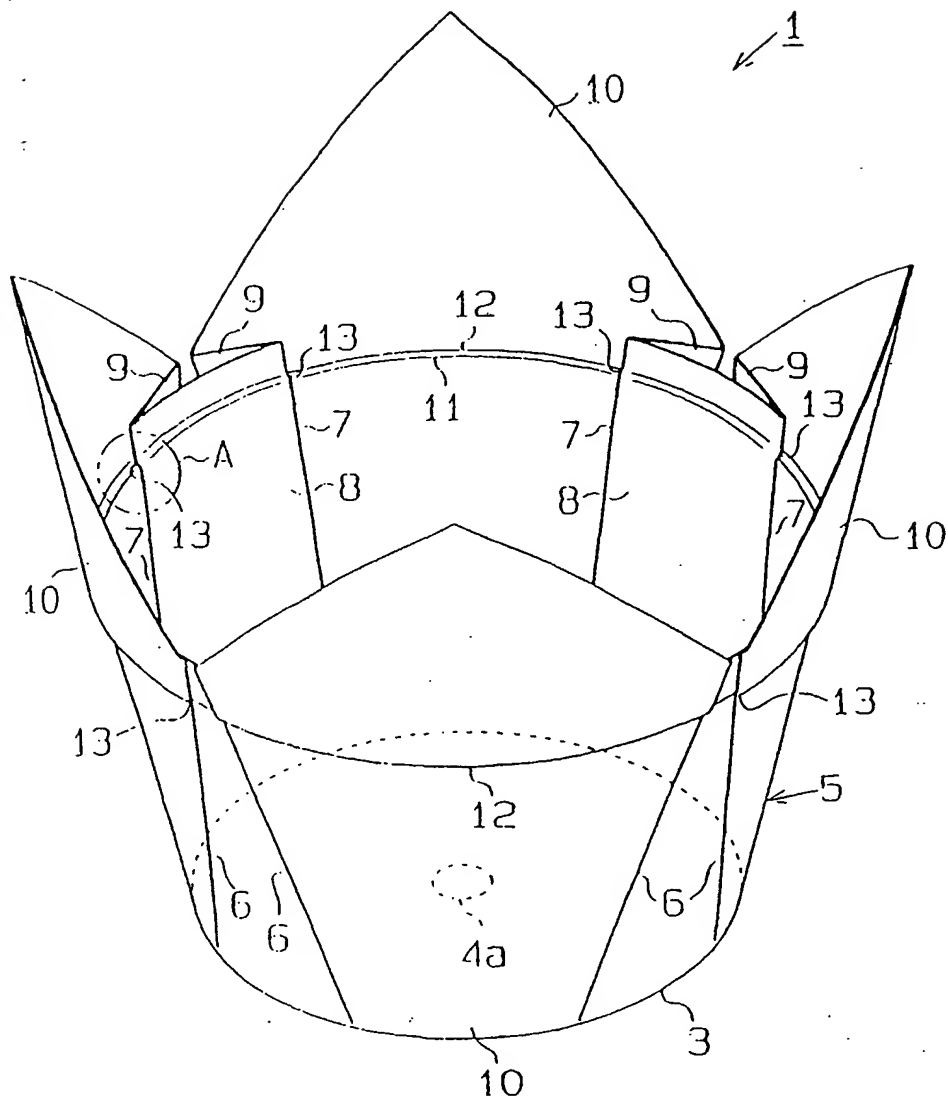


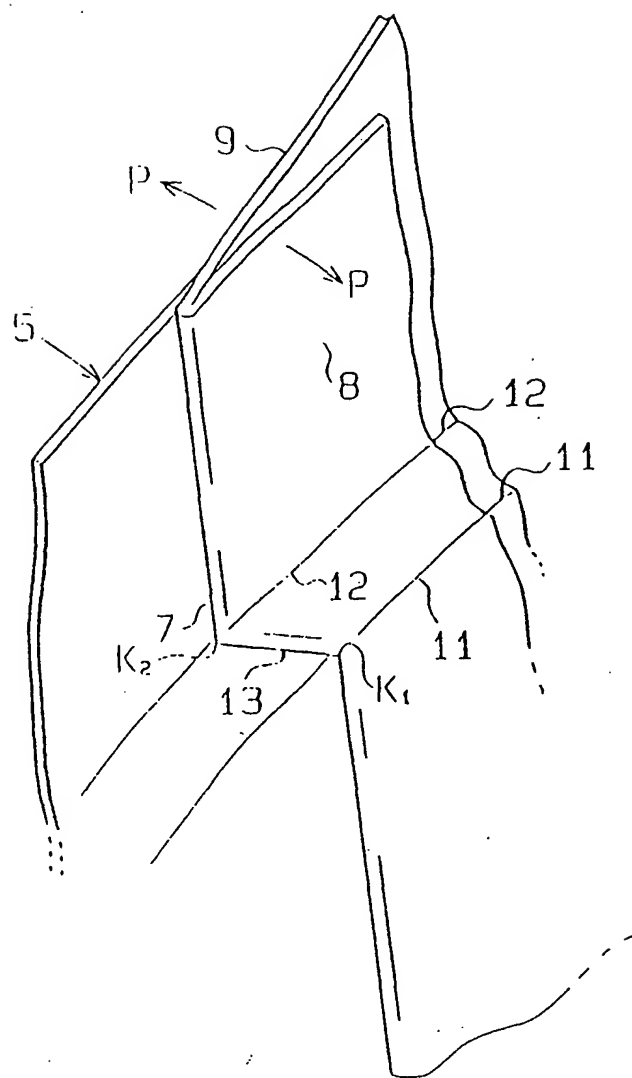
Fig. 3

Fig. 4

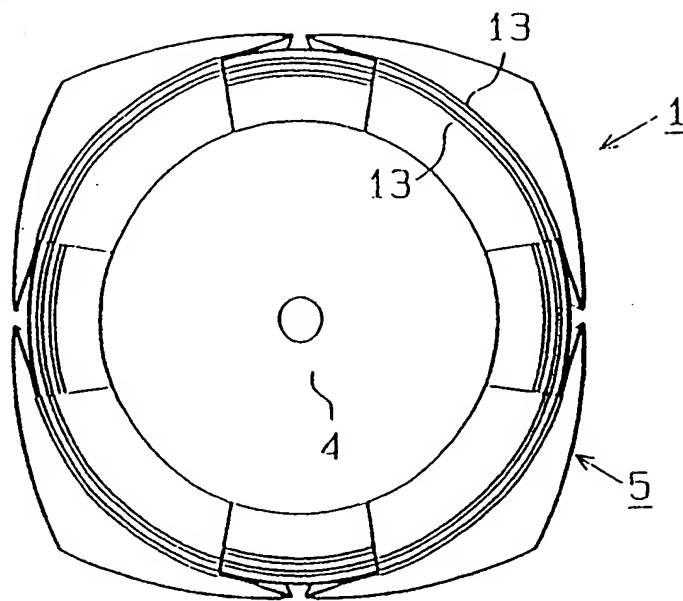


Fig. 5

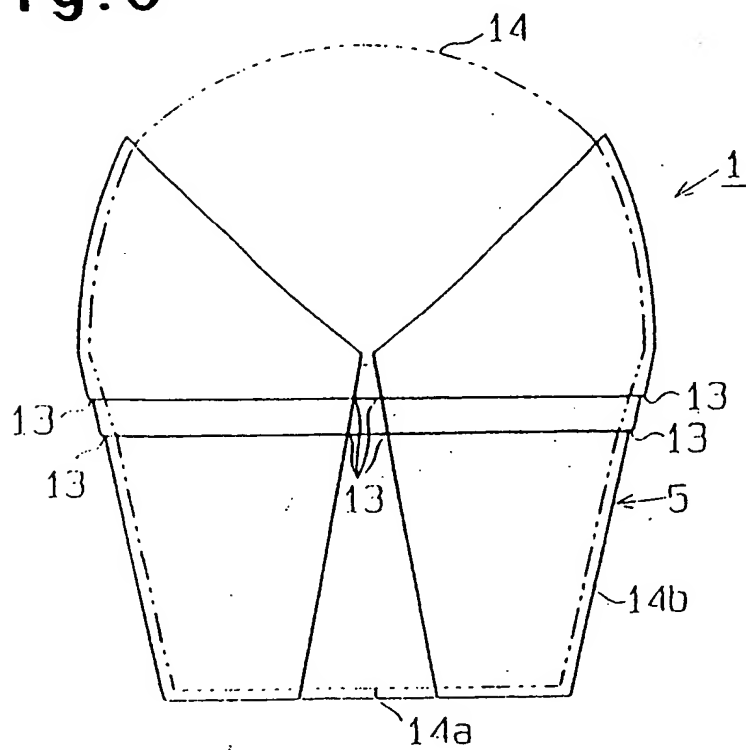


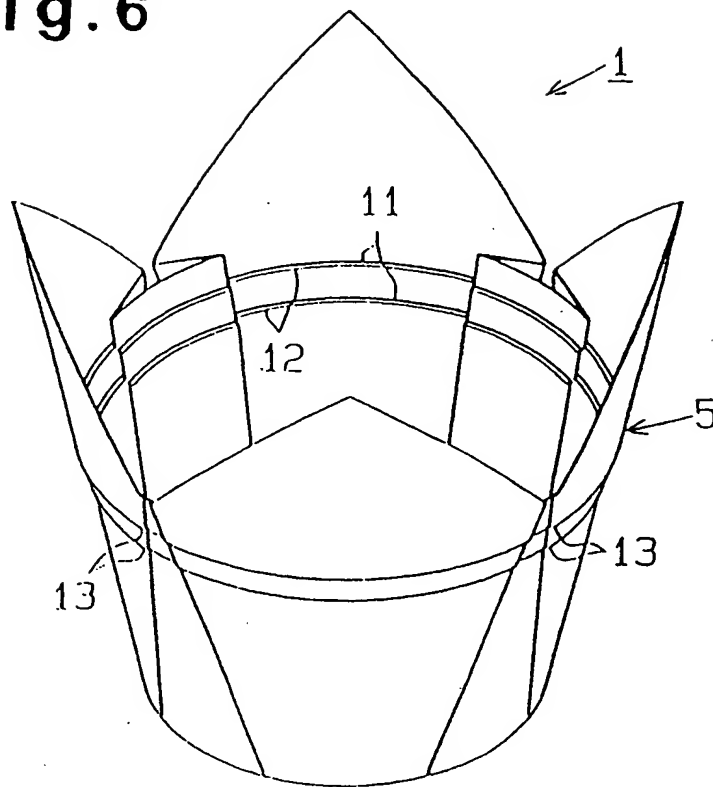
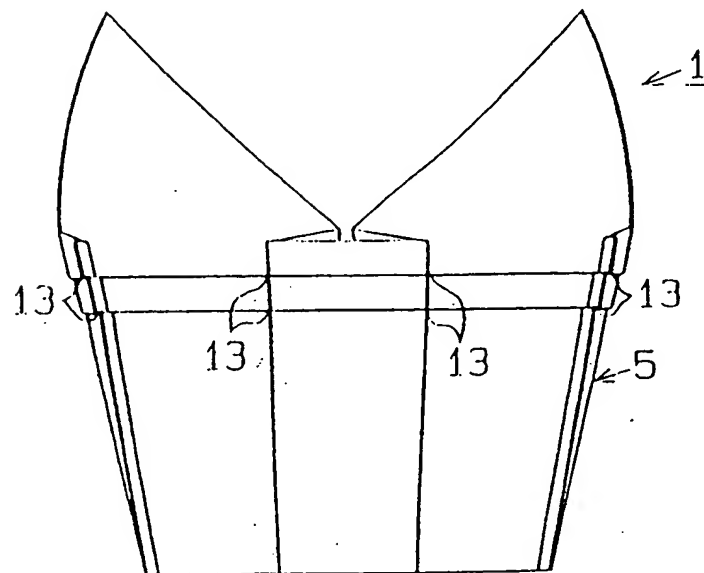
Fig. 6**Fig. 7**

Fig. 8

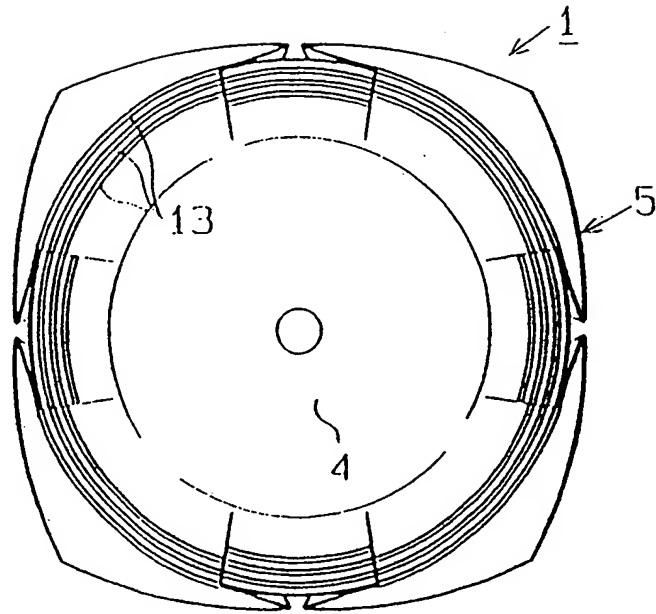


Fig. 9

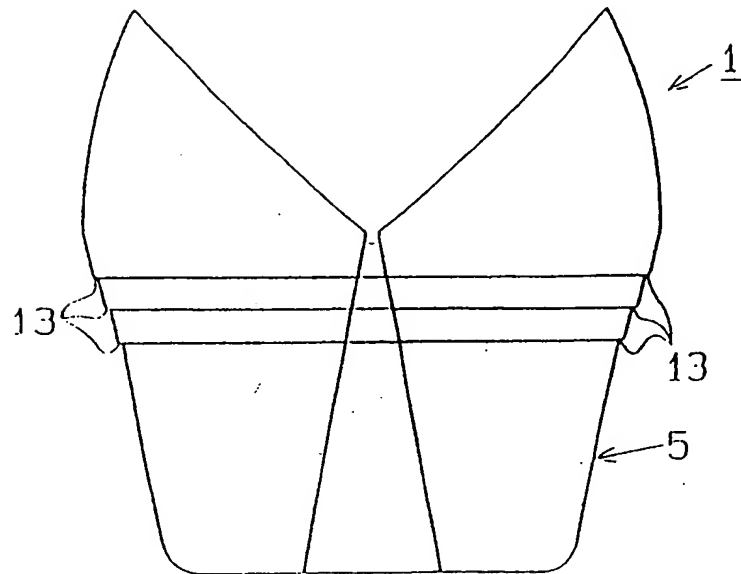


Fig.10

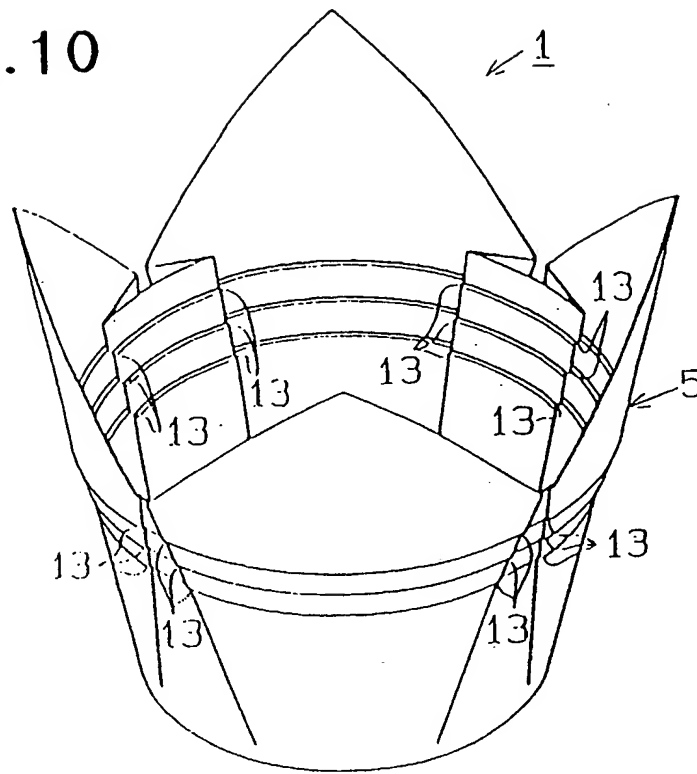


Fig.11

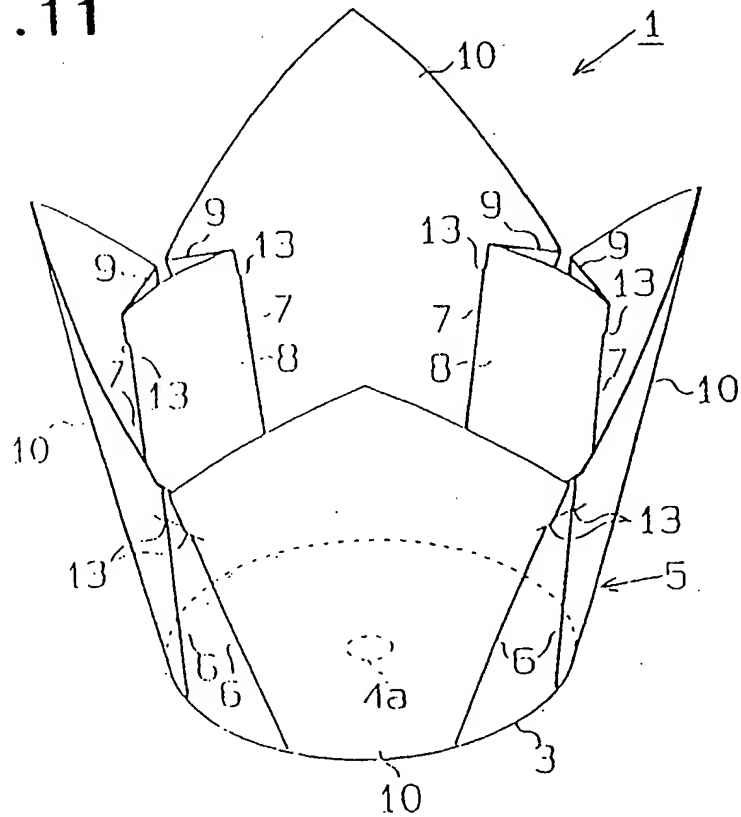


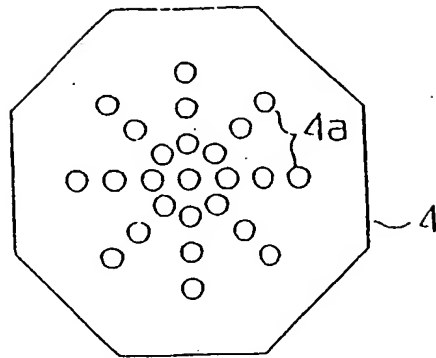
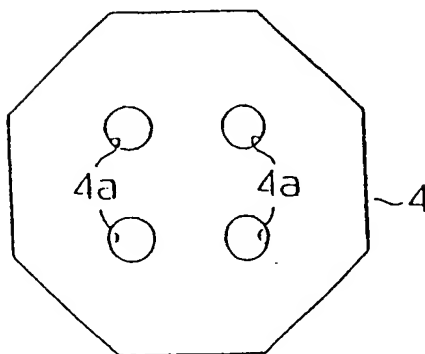
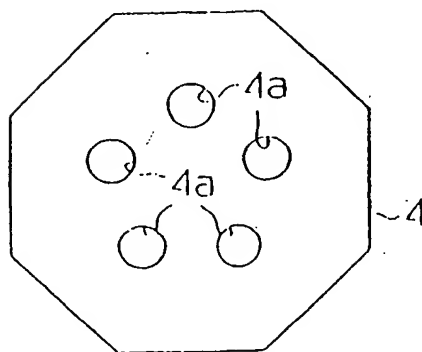
Fig.12**Fig.13****Fig.14**

Fig.15

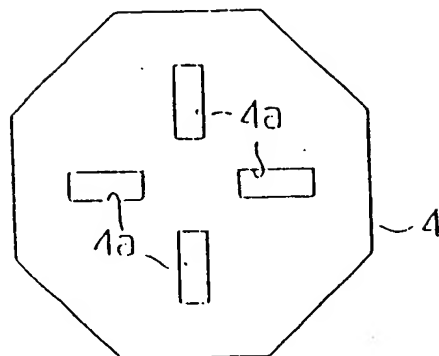


Fig.16

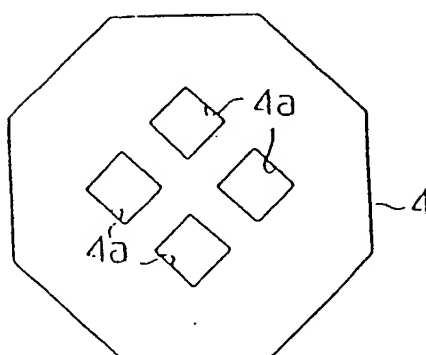


Fig.17

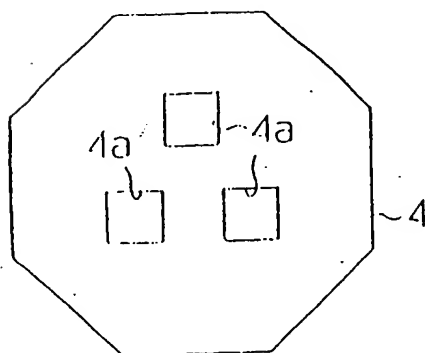


Fig. 18

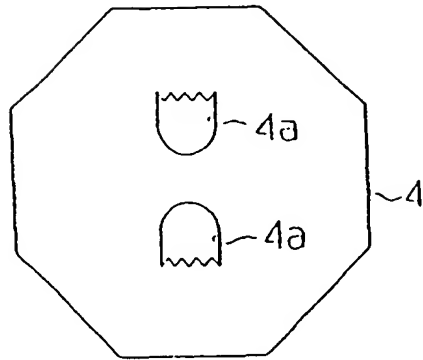


Fig. 19

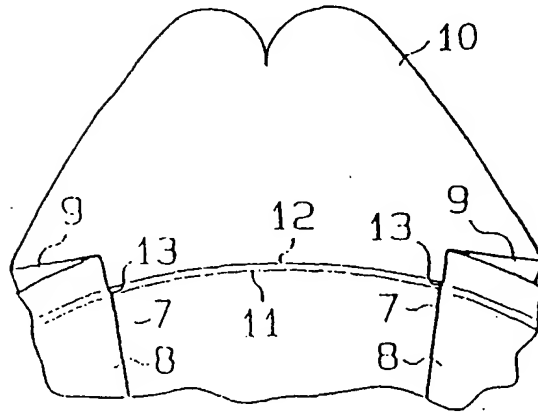


Fig. 20

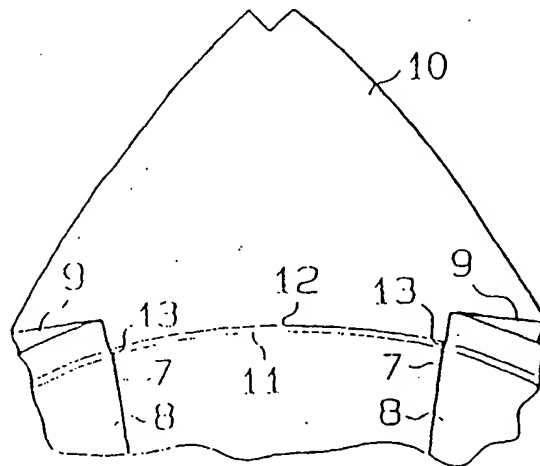
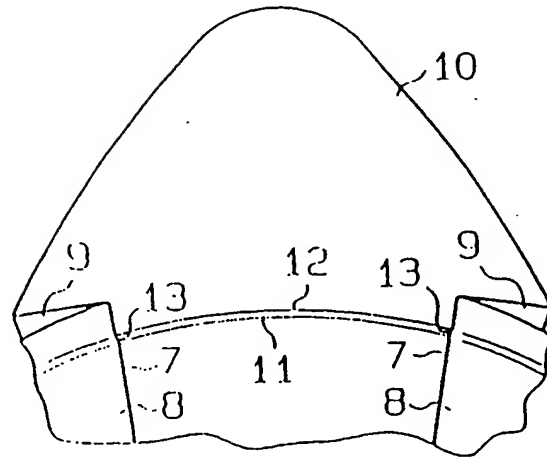
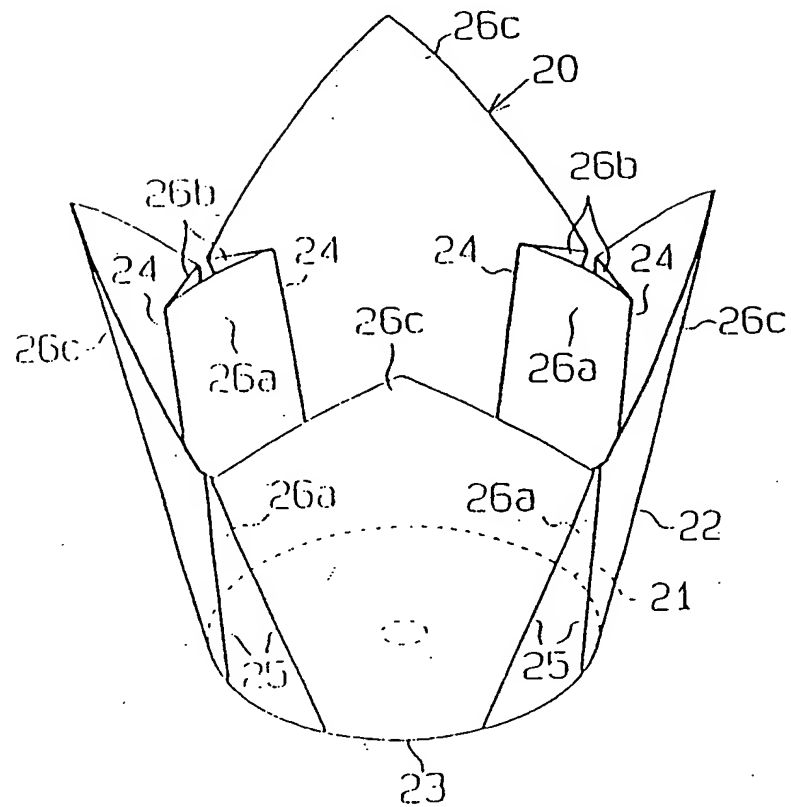


Fig. 21**Fig. 22**

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP95/02223

A. CLASSIFICATION OF SUBJECT MATTER Int. C1 ⁶ B65D3/02, B65D5/24, B65D85/36 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int. C1 ⁶ B65D3/02, B65D5/24, B65D85/36, B65D1/26, A21B3/13 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1926 - 1995 Kokai Jitsuyo Shinan Koho 1971 - 1995 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP, 57-36580, Y2 (Kunihiro Kanemoto), August 12, 1982 (12. 08. 82) (Family: none)	1 - 10
A	JP, 2-99626, U (Yoshimi Ito), January 25, 1989 (25. 01. 89) (Family: none)	1 - 10
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search January 5, 1996 (05. 01. 96)		Date of mailing of the international search report January 30, 1996 (30. 01. 96)
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